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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,300	12/15/2005	Mitsuaki Daio	19415-006USIPCT-04R-174US	2822
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EXAMINER				
LUO, DAVID S				
ART UNIT		PAPER NUMBER		
2837				
NOTIFICATION DATE		DELIVERY MODE		
05/14/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

### Office Action Summary

**Application No.**

10/561,300

**Applicant(s)**

DAIO, MITSUAKI

**Examiner**

DAVID S. LUO

**Art Unit**

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 12/15/2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. The specification, the abstract and the drawings are all acceptable.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,903,894 to Kokami.

As to claim 1, Kokami teaches a motor driver (Kokami figs. 1, 3, 5 which discloses a voice coil motor or VCM driven by detection amplifiers) including: a current output driver (Kokami fig. 1: "114 – VCM driver") that outputs a drive current fed to a direct-current motor (Kokami fig. 1: "11 – voice coil motor"); n detection resistors connected in series with a coil of the direct-current motor (Kokami fig. 3: "R<sub>a</sub>" which is a current detecting resistor is connected to the voice coil motor "11" [per col. 5: line 46-47]); and n current detection amplifiers provided one for each of the n detection resistors, each current detection amplifier detecting a voltage across the corresponding detection resistor (Kokami fig. 3: "3" & "4", col. 5: lines 42-45 "the output amplifiers 3 and 4 are current drivers set with predetermined voltage gains by the resistors R7 through R14").

Kokami does not specifically teaches a gain switch circuit [which has a plurality of switches and resistors] to physically connect to the current detection amplifiers in order to adjust

the voltage gain. At the time of invention it would have been obvious to a person of ordinary skill in the art to modify the teachings of Kokami to add a gain switch circuit to connect to the amplifiers in order to obtain the invention as disclosed in claim 1 as Kokami teaches a method of setting the predetermined voltage gains for the output amplifiers by using resistors R7 through R14 [fig. 3: “3” and “4”, col. 5: lines 41-43] and setting the voltage gains for the sense amplifiers by using resistors R3 through R6 [fig. 3: “5” and col. 5: lines 58-60]. Thus, a gain switch circuit simply implements Kokami’s teachings of amplifier voltage gain control by the use of switches connected to resistors, which is obvious to a person with ordinary skill in the art.

As to claim 2, it is rejected as the same reason as claim 1.

As to claim 3, Kokami teaches a motor driver as claimed in claim 2. Kokami does not specifically teaches a gain switch circuit [which has a plurality of switches and resistors] to physically connect to the current detection amplifiers in order to adjust the voltage gain. At the time of invention it would have been obvious to a person of ordinary skill in the art to modify the teachings of Kokami to add a gain switch circuit to connect to the amplifiers in order to obtain the invention as disclosed in claim 1 as Kokami teaches a method of setting the predetermined voltage gains for the output amplifiers by using resistors R7 through R14 [fig. 3: “3” and “4”, col. 5: lines 41-43] and setting the voltage gains for the sense amplifiers by using resistors R3 through R6 [fig. 3: “5” and col. 5: lines 58-60]. Thus, a gain switch circuit simply implements Kokami’s teachings of amplifier voltage gain control by the use of switches connected to resistors, which is obvious to a person with ordinary skill in the art.

As to claims 4-5, they are rejected as the same reason as claim 3.

As to claims 6-7, Kokami teaches the relationship between the amplifier gain and the detection resistances (Kokami col. 8: lines 8-32).

As to claims 8-9, they are rejected as the same reason as claims 4-5.

As to claim 10, it is rejected as the same reason as claim 6.

As to claims 12-13, Kokami teaches a direct-current motor whose driving is controlled by the motor driver and a magnetic head that is moved in a direction of a radius of a magnetic disk by being fed with power from the direct-current motor (Kokami fig. 1).

4. Claims 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,903,894 to Kokami, and further in view of USPN 6,653,810 to Lo.

As to claim 11, Kokami teaches a motor driver as claimed in claim 2. Kokami does not teach a method of building the motor controlling devices in a single semiconductor integrated circuit device. Lo teaches a method of building the motor controlling devices in a single semiconductor integrated circuit device (Lo col. 2: lines 37-44).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to implement the teachings of Lo into Kokami since Lo suggests the beneficial use of building motor controlling devices in a single semiconductor integrated circuit device as disclosed in the invention in the analogous art of motor control system.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US PG Pub 2002/0181142 to Kokami discloses a magnetic disc storage apparatus;  
USPN 6,757,129 to Kuroiwa discloses a magnetic disk storage apparatus;

USPN 6,078,446 to Sohara discloses a semiconductor integrated circuit device for reading and writing.

***Conclusion***

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Luo whose telephone number is (571)270-5251. The examiner can normally be reached on M-F 9AM-6PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Benson can be reached on (571)272-2227. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David Luo  
Art Unit 2837

/BENTSU RO/  
Primary Examiner, Art Unit 2837